

A Science Service Feature

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? WHY THE WEATHER ?

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COLD COASTAL WATERS

The coolness, the frequency or persistence of the sea-breeze, and relative lack of thunderstorms, and the numerous fogs, of the Atlantic coast north of Cape Cod and the Pacific coast of California, are characteristic features of the summer climate which are closely bound up with the coldness of the near-shore waters. Though the Labrador Current is given the discredit for the frigidity of the coastal waters of Nova Scotia and Maine, observations of currents and drifts indicate that the ice and ice-water from the St. Lawrence estuary in spring are responsible. After the ice-break up, usually late in April or early in May, this year uncommonly late, the outflow from the estuary, turning to the right as the earth rotates, passes down the Nova Scotia coast as a cold current in May and June, and enters the Bay of Fundy. There the rushing tides keep the water well stirred as it continues across, in some years in considerable volume, to the coast of eastern Maine. From here it slowly drifts southwestward, and, making a counterclockwise circuit of the Gulf of Maine, returns toward Nova Scotia somewhat warmer. In this circuit, however, the tidal currents are not strong enough to mix surface and bottom waters so thoroughly as at the mouth of the Bay of Fundy, so while the lower layers stay very cold the surface sheet becomes warm enough for comfortable bathing. Off-shore winds, however, may, within a day, bring up very cold water, 50 degrees Fahrenheit or colder, as the surface sheets are blown out to sea.

The coldness of the Californian coastal waters is due to upwelling from the depths of the Pacific as the southward moving California Current is deflected to the right and away from the shore by the rotation of the earth. The temperatures of the body of the California current are generally lower than the average for the latitude, for it is a southward flow. It is, however, not nearly so cold as the upwelling shoreward margin, which in summer has a temperature of about 55 to 65 degrees Fahrenheit.

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